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DEPLOYMENT/FIELDING

Deployment: As used herein, deployment is a generic term covering the activities known as fleet introduction in the Navy, site activation in the Air Force, materiel fielding in the Army, and fielding in the IT/AIS community.

25.1 HIGHLIGHTS

In this Chapter, several deployment/fielding highlights will be discussed, including:

- deployment planning requirements and schedules;
- deployment coordination and negotiation requirements;
- the deployment plan, agreement and certification; and
- deployment process management.

25.2 INTRODUCTION

25.2.1 Purpose

This Chapter will provide a managerial overview of the actions required to successfully deploy a new or modified system.

The term deployment, as used here, includes fielding, turnover, hand-off, fleet-introduction and other terms used by the Services for the initial introduction of a system to operational commands. Deployment planning, execution, and follow-up requirements will be discussed. They cover the period from the Concept Exploration (CE) phase until the last unit is operational.

25.2.2 Objective

The deployment process is designed to turn over newly acquired or modified systems to users who are being and have been trained and equipped to operate and maintain the equipment. All organic or contractor-operated elements of logistics must be in place at appropriate levels at the time of deployment. Although it may seem a straightforward process, deployment is complex and can be costly if not properly managed. When properly planned and executed, deployment can make a major contribution toward mission achievement if planned levels of unit readiness are met, planned costs are not exceeded, and logistics turmoil is minimized.

25.3 MANAGEMENT ISSUES

25.3.1 Scope

Deployment challenges the Service logistics organization with providing adequate support to a system when custody of that system shifts to a user or operating command. At that point, the Service logistics capability may be augmented for various periods or perpetually by a range of contractor-provided services. In fact, DoD 5000.2-R directs that these services be used for appropriate programs by stating, “Where they are available, cost-effective, and can readily meet the user’s requirements, commercial support resources shall be used.”

First unit Initial Operational Capability (IOC), a possible start date for deployment resources to be in place, may range from the first day of custody of the system hardware to some later date when unit training has been completed and a readiness inspection is satisfactorily passed. The type of deployment program may range from introduction of thousands of combat vehicles over a 10-year period to the staged delivery and acceptance of a single aircraft carrier. Regardless of the number of items and the length of the deployment schedule, there must be a comprehensive, coordinated deployment plan. This plan must contain realistic lead times that are supported by adequate funds and staff and that have the potential for rigorous execution. Applicable elements, among those identified in Figure 25-1, must be available on schedule or the system will not be operational.

Although a deployment schedule may be established at Milestone I, subsequent adjustments are possible and should be considered, particularly in the early stages of a program when a greater range of flexibility exists. In later stages of the acquisition process, the failure to meet a logistics milestone can translate either into a costly deployment delay or deployment of a system that cannot meet readiness goals. Either one will result in reduced mission capability.

25.3.2 Planning

Deployment should not be thought of as simply delivering equipment. There is a need for consideration of manpower, personnel and training requirements, establishment of facilities, placement of system support, use of contractor support, data collection and feedback, scheduling, and identification of funds. Planning for deployment and using an Integrated Product Team (IPT), as appropriate, begins in the CE phase as an integral part of the systems engineering process. Reference is made to the logistics performance requirements stated in the Operational Requirements Document (ORD). By Milestone I, a draft logistics plan is recommended to address the long-term deployment considerations. Deployment planning intensifies through the Program Definition and Risk Reduction phase so that by the Engineering and Manufacturing Development (EMD) phase, a

MATERIEL SYSTEMS

MATERIEL SYSTEMS

PECULIAR

COMMON

SPARES & REPAIR PARTS

PECULIAR

COMMON

TECH MANUALS

OPERATING

MAINTENANCE

PERSONNEL

OPERATING

MAINTENANCE

FACILITIES

EXISTING (AVAILABILITY)

CONSTRUCTION

TRAINING

FACTORY

SERVICE TEAM

SIMULATORS

MAINTENANCE TRAINERS

TRANSITION TEAM

INTERIM CONTRACTOR SUPPORT

DEPOT SUPPORT

CALIBRATION

COMPUTER RESOURCES SUPPORT

PHST

DATA COLLECTION SYSTEM

ADEQUATE FUNDING

RECEIPT OF SUPPORT

TRAINING
SITE

TACTICAL
SITE

SYSTEM CHECK OUT

UNIT TRAINING

IOC

1st

UNIT

2nd UNIT

3rd UNIT

4th UNIT

5th UNIT

Figure 25-1: Deployment Requirements

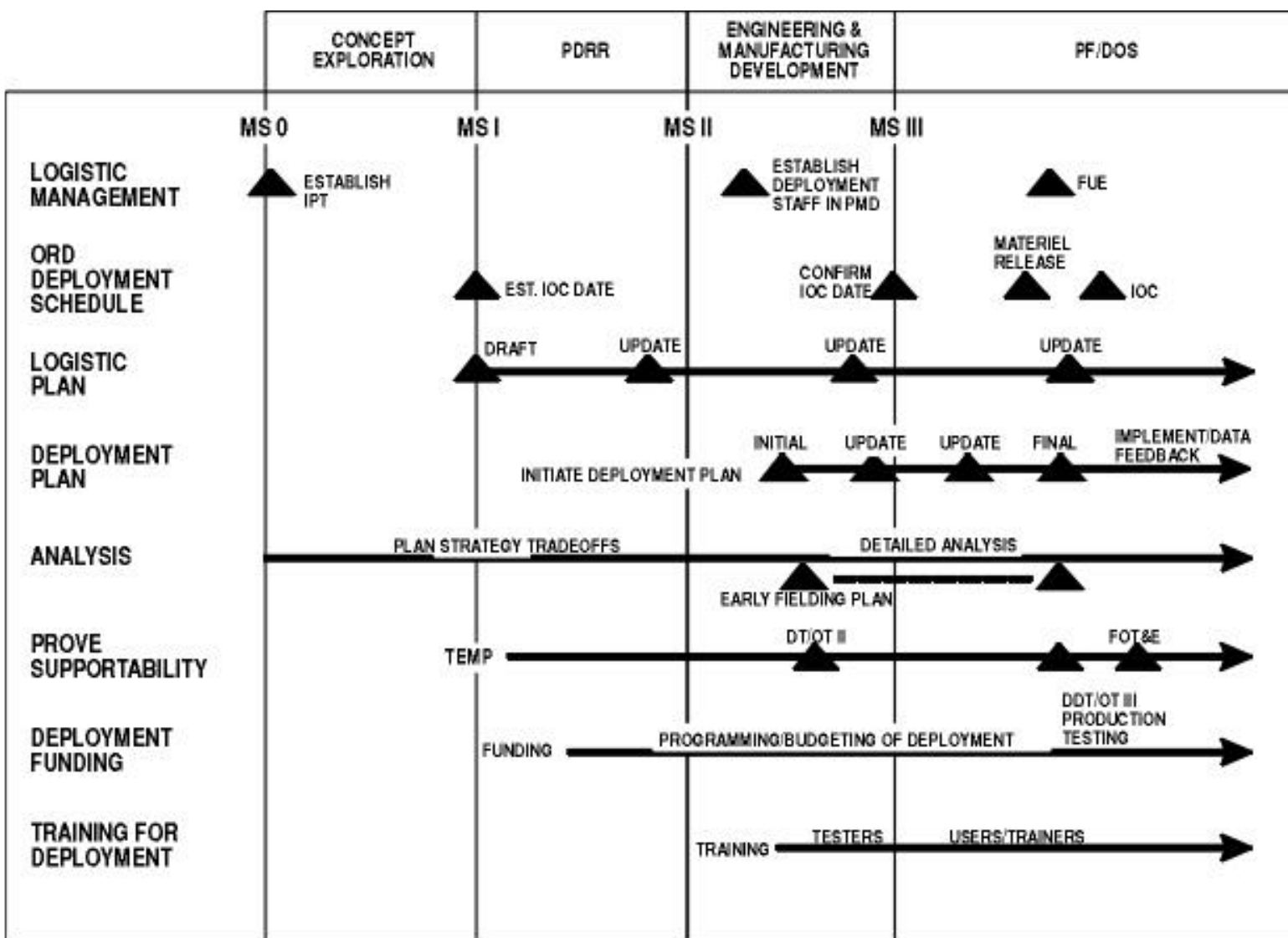


Figure 25-2: Deployment Activities

detailed plan for deployment can be prepared. This plan must be updated and coordinated on an ongoing basis to reflect program changes.

Dissemination of information to all participants and IPTs is very important; each change must be coordinated as needed and passed on to every organization involved in the deployment process. Figure 25-2 shows the relationship between deployment activities and major logistics activities. Changes in almost any aspect of the program (ranging from the very obvious, such as production schedule changes, to a less obvious change in unit manning requirements) can have an impact on deployment. Figure 25-3 provides suggested generic topics for inclusion in the plan. The logistics manager must be actively involved in deployment planning.

<p>SYSTEM SUPPORT DETAILS</p> <ul style="list-style-type: none">A. Limitation of dataB. Logistics support conceptC. Deployment agreement and certification (LOA, MOU)* <p>SYSTEM/END ITEM DESCRIPTION</p> <ul style="list-style-type: none">A. Functional configurationB. Organizational and operational conceptsC. Deployment schedules <p>LOGISTICS SUPPORT AND COMMAND AND CONTROL</p> <ul style="list-style-type: none">A. Command and control proceduresB. Logistics assistanceC. Materiel defectsD. Coordination <p>SUPPORT REQUIRED FROM USING COMMAND</p> <p>OTHER CONSIDERATIONS</p> <ul style="list-style-type: none">A. Key correspondenceB. Plans and agreementsC. Developers checklistD. User command checklistE. Classified information <p>* Letters of agreement, memorandum of understanding</p>
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Figure 25-3: Typical Deployment Considerations

25.3.2.1 Test and Evaluation. Supportability of a system should be demonstrated before deployment. The logistics manager must ensure that the Test and Evaluation Master Plan

(TEMP) includes supportability objectives, issues, and criteria. Development and operational testing during EMD provides information for the Milestone III production approval decision and provides input to follow-on testing requirements. These tests should provide assurance that the proposed logistics concepts and planned resources will be sufficient to support the system once deployed. This testing may also suggest changes to planned deployment actions. In addition, the Follow-On Test and Evaluation (FOT&E) may use the first unit equipped as the test unit; FOT&E planning must, therefore, be closely coordinated with deployment planning.

25.3.2.2 Logistics Plans. Contract performance specifications have an impact on deployment planning and execution. An early fielding analysis plan, in terms of desired performance, should be considered as a contractor task and an IPT action item during EMD. This plan should be revised as input data changes. Typical input data changes result from changes in deployment quantities and schedules and changes in manpower and personnel requirements or availability. Early fielding plans assist logistics management and the IPT by assessing desired performance in terms of many elements. Among the elements considered are the impact of the introduction of new systems on existing systems, the identification of sources of personnel to meet the requirements of the new systems, the impact of a program's failure to obtain all the logistics support resources, and the essential logistics support resource requirements for an operational environment. Early plans for fielding should consider addressing actions to alleviate potential fielding problems impacting performance i.e., risk analysis.

25.3.2.3 Funding. Specific funding requirements for deployment require early identification in terms of programming and budgeting. Deployment-related funding requirements may include military construction, training, travel, transportation of materiel, and contractor support; and they can involve both the program management office (PMO) and user funds. Program Managers (PMs) need clear visibility and control over such funds to accomplish deployment goals.

25.3.2.4 Warranties. The logistics manager must participate in the selection of essential performance requirements to be warranted in the production contract. Typically, warranties are on system or component reliability. The procedures for processing warranties should minimize impact on the user, particularly at the organizational level. Warranty provisions should enable the user to make warranty claims without delaying essential maintenance needed to restore system availability. Some years ago, the Navy established warranties that allow Navy personnel to perform needed maintenance and then recover the cost incurred from the contractor.

When a warranty is to be used, the user must be involved in the planning; and the warranty's impact must be accommodated in the deployment plan. The deployment plan should state which components are under warranty, by whom and for how long, the performance parameters covered, and the starting date or event of the warranty. It is often necessary to describe warranty provisions by equipment serial numbers. The interface between the user and the contractor should be explained in the plan.

Warranty coverage often begins when the item is accepted by the government and delivered to its first destination. If the first destination is a storage depot (despite DoD effort to reduce warehouse stocks) and the warranty period is measured in elapsed time, a portion or all of the warranted life may expire before the item is placed into use. Under these circumstances, it is preferable to seek warranty coverage that begins when the item is placed into service or coverage that is based upon a measure of usage such as miles driven or elapsed operating time. A more comprehensive discussion of warranties is contained in Chapter 19 of this Guide.

25.3.2.5 Management Information System (MIS). The logistics manager should establish a MIS to assist with the deployment planning and implementation processes. The number of logistics elements, the varied disciplines involved in planning for deployment, the numerous funding sources for support, and the multitude of interrelated data items make the deployment status difficult to track and update unless it is managed systematically. For example, a slippage in parts delivery for a simulator could mean that more training time is needed on the prime system. This would increase demands on maintenance (during a training period) and increase the demand for replenishment spares. The increased demand for spares could impact the availability of components for the production line or the initial support package for following deployments and, thus, cause a slippage in the deployment schedule. Slippage in the deployment schedule would increase the demand for support to the system being phased out – all the result of slippage in parts for the simulator. In addition, failure rates and operating problems could differ significantly from those encountered in the testing environment. These difficulties must be fed back to the logistics manager so the support deficiencies can be corrected. As a minimum, on-site data collection, reports of tradeoff analyses, status of support activities, and costs and funding reports should be included in the MIS.

25.3.3 Coordination and Negotiation

Establishment of a deployment IPT should be considered. The group should, at a minimum, have members from the using and supporting commands. Figure 25-4 depicts representative participants and responsibilities.

Deployment can involve negotiation of a major agreement, certification by the PM to deliver the system and its support, and certification by the user to prepare for its receipt. The agreement may be an integral part of the plan for deployment as it is negotiated between the two principals and coordinated among the many other participants and/or IPT members. Negotiations should commence before the production decision and should be documented as required by each Service. For example, in the case of the USAF, the turnover agreement in the past has been documented in the Air Force program management plan. The coordination may involve on-site meetings to coordinate the details of transfer, site planning and inspection, equipment on-site checkout, and similar activities. The initial units to receive a new system frequently compete for replacement spares with the ongoing production line and with the build-up to support subsequent deployments. Depot-level component repair may also compete with the production line for resources (test equipment, bits and pieces, skilled personnel, etc.). These problems are com-

pounded when the fielded reliability does not meet the planned reliability. The priorities established for satisfying requirements during this time of support and production build-up should be included in the agreement.

COMMAND/STAFF	RESPONSIBILITIES
Program Management Office	<ul style="list-style-type: none"> • Establishes working group • Develops supportability testing assessment • Provides input to training plans • Prepares deployment plan • Coordinates plan • Prepares deployment agreement or certification • Negotiates Agreement or Certification with Using Command(s)
User Commands	<ul style="list-style-type: none"> • Prepares operational support plan • Provides input to deployment plan • Negotiates agreement or certification with PMO
Test and Evaluation Organization	<ul style="list-style-type: none"> • Performs OT&E, FOT&E
Training Command	<ul style="list-style-type: none"> • Provides input to deployment plan • Prepares training plans and system training requirements
Service Staff	<ul style="list-style-type: none"> • Provides deployment allocations, personnel changes, training facilities and logistical inputs to the deployment plan • Reviews plans and agreements
Contractor	<ul style="list-style-type: none"> • Provides support warranty • May provide technical interim or life-cycle maintenance and supply support

Figure 25-4: Deployment General Responsibilities

25.3.4 Organization

As the planning for deployment intensifies, the PM should establish an organization or IPT within the PMO to assist the user, interact with the working groups, and resolve problems that arise during deployment. Deployment personnel should be considered for both PMO and on-site assignments. Teams or IPTs may be required for briefing and assisting user commanders and their staffs. System deployment teams on site can assist in the checkout of equipment, help perform the hand-off, train unit personnel, and assure that support capabilities are in place. The assistance of contractor personnel is often desirable at this time and should be considered in the planning.

25.3.5 Materiel Release Review

The release of the first system to each major user activity follows a period of extensive planning and coordination. The materiel release review (a formal Army activity that is applicable to all Services) is a control mechanism. It verifies that all materiel and logistics deficiencies identified in OT&E have been corrected and that all logistics resources required to support the initial deployment will be available concurrently with the release of the system. (See Figure 25-1.) The materiel release is, in essence, a certification by the developing activity that all conditions required to achieve initial readiness have been met.

25.3.6 Lessons Learned from Previous Deployments

Figure 25-5 summarizes problem areas associated with previous deployments/fieldings and suggested corrective actions. In addition, a comprehensive database called Automated Lessons Learned Capture and Retrieval System (ALLCARS), is the Air Force lessons-learned database. It is managed in the Aeronautical Systems Center by the Program Director for the Deskbook Joint Program Office (ASC/SYM) at Wright-Patterson AFB, OH. ALLCARS hosts lessons learned from the Combined Automated Lessons Learned (CALL) program. Contributing members are the Air Force, Navy, FAA, and NASA; each member is responsible for the content of their data.

ALLCARS seeks to close the gap between DoD organizations, U.S. Government agencies, and the defense industry by archiving and making available the documented experiences of customers and maintainers of government equipment. It is a central repository for unclassified lessons learned. If you have questions or comments, you may contact ALLCARS at:

Address: ASC/SYM, Bldg. 16
2275 D Street
WPAFB, OH 45433-7233

Phone: DSN 785-0423 or commercial 513-255-0423

COMMON PROBLEM AREAS	CORRECTIVE ACTIONS
Personnel Turnover	<p>Document all plans, agreements, and changes.</p> <p>Conduct new equipment training close to the date that the unit will be equipped.</p>
Conditional Materiel Release	User must understand and agree to the terms of a conditional materiel release.
Training of Operations and Maintenance Personnel	<p>Software training is required before ATE delivery so the unit will be better prepared to participate in the acceptance testing.</p> <p>New equipment training must include provisions for the maintenance of equipment used in training. Contractor personnel may be considered for this task.</p> <p>Developer should brief operational commanders and their staffs periodically prior to deployment.</p> <p>Developer must ensure all required support equipment is available prior to new equipment training.</p> <p>Personnel should be scheduled for new equipment training. They should have the correct skills, sufficient time remaining in the unit, and meet all other training prerequisites.</p> <p>The use of videotapes and other media should be considered for new equipment training teams.</p>
Establishing a PMO Deployment Team (Field Support)	Experienced fielding personnel who are logisticians familiar with the system are needed. Start looking for these people early.
Warranties	Establish simple procedures for returning failed parts to the manufacturer for analysis.
Deployment Plan for a Nonlogistics Significant Item	A plan may not be necessary, but the user must concur with the decision to eliminate the plan.
Contractor Involvement in Deployment Planning	<p>Keep the contractors informed of requirements so they can assess their tasks.</p> <p>Contracts must be negotiated to ensure support items are delivered concurrently with the end item.</p>
Hardware Problems During User Hand-off Period	Establish a staging area (may be at contractor's facility) where maintenance personnel can check out all equipment.

Figure 25-5: Common Deployment Problems

25.4 RISK MANAGEMENT

25.4.1 Funding Reduction

25.4.1.1 Risk Area. The risk area involves the reduced funding from the Acquisition Program Baseline (APB) values.

25.4.1.2 Risk Handling. Because cost is an independent variable, performance and schedule tradeoffs, in the final analysis, are all that is available other than program termination, to accommodate a reduction in planned funds other than program termination. The number of units procured (if more than one) can be thought of as either a performance or schedule issue. Risk handling requires that objective functions be conceived for various points on the time-line of the program. These functions should define how performance and/or schedule are related to cost, in order to help in the performance of tradeoff analyses. Such objective functions should be evaluated as to their validity and sensitivity tests performed. Only in this way can the PM be somewhat prepared for the increasingly severe financial future facing the Department of Defense.

25.4.2 Schedule Slippage

25.4.2.1 Risk Area. A risk area is the failure to understand how a schedule slippage in one functional element impacts the other elements and milestone events.

25.4.2.2 Risk Handling. The PM should employ a network schedule, such as the critical path method, which identifies all deployment activities and annotates the critical path of those activities that would delay deployment if not accomplished on schedule.

25.4.3 Delayed Facilities Planning

25.4.3.1 Risk Area. Failure to perform timely facility planning can result in substantial deployment delays.

25.4.3.2 Risk Handling. Facility requirements that are included in the military construction program normally have a planning and funding cycle of five years. In the case of NATO requirements, the cycle may run up to seven years. Early identification of requirements and coordination with the military construction proponent, therefore, is necessary, and a facilities support plan is desirable.

25.4.4 Updating the Deployment Plan

25.4.4.1 Risk Area. Failure to keep the deployment plan updated, complete, and coordinated with all concerned can result in deployment delays and problems.

25.4.4.2 Risk Handling. As requirements, schedules, and responsibilities change, the fielding personnel in the PM's organization must be informed so they recognize the need

to promptly update the plan. In addition, the PM must also ensure that the plan and its changes are fully coordinated with the user and that the deployment IPT provides the vehicle for its coordination and distribution. Finally, the user should be required to prepare a plan for the receipt of the new system and should have established policy and procedures regarding the preparations for receipt of the new system by its subordinate units.

25.4.5 Managing Problems in the Deployment Process

25.4.5.1 Risk Area. Unreported and uncorrected deployment problems can seriously disrupt the process.

25.4.5.2 Risk Handling. Problems need to be quickly identified, reported, and solved. The deployment plan should provide a process that will lead to the rapid correction of deployment problems and deficiencies. On-site program management and contractor personnel can facilitate the identification and reporting of problems. In addition, for the benefit of future deployments, lessons-learned reports, based on the problems and their solutions, should be submitted to the appropriate Service agency.

25.5 SUMMARY

- Deployment is a key event in the acquisition life cycle. Its success can be evaluated in terms of how closely it adheres to schedule, how smoothly it is achieved, and how easily the user establishes the ability to meet and sustain the system readiness objective.
- The success of the process is directly related to how well it is planned, coordinated, negotiated, and executed. Major points are as follows:
 - Deployment planning, as part of logistics, is an integral part of the system engineering process and is initially addressed in the CE phase. Logistics performance requirements are documented in the ORD for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) acquisition programs. Deployment planning intensifies during EMD; and it reaches a peak during Phase III as the deployment approaches.
 - Extensive coordination and negotiation characterize deployment. It deals with many long lead-time tasks, e.g., facilities, personnel, provisioning, procurement of training devices, and spares and repair parts.

25.6 REFERENCES

DoD Acquisition Logistics Handbook, MIL-HDBK-502, 30 May 1997, USAMC Logistics Support Activity, Redstone Arsenal, AL 35898-7466